

REMARKS

In the Office Action mailed October 01, 2007, the Office (1) rejected claims 1-4, 7, 32-34 and 38 under 35 U.S.C. § 103(a) as being unpatentable over Arnon et al., U.S. Patent Publication No. 2002/0114038 (hereinafter "Arnon") in view of Nakano, U.S. Patent No. 6,795,675 (hereinafter "Nakano"); (2) rejected claims 16, 18-21, and 23 under 35 U.S.C. § 103(a) as being unpatentable over Arnon in view of Harres, U.S. Patent No. 6,128,112 (hereinafter "Harres") and Saunders, U.S. Patent No. 6,259,542 (hereinafter "Saunders") and Nakano; (3) rejected claims 5, 8-12, 35, 39 and 40 under 35 U.S.C. § 103(a) as being unpatentable over Arnon in view of Nakano, and further in view of Harres; (4) rejected claims 13-15 and 41-43 under 35 U.S.C. § 103(a) as being unpatentable over Arnon and Nakano, and in further view of Harres and Saunders (5) rejected claim 37 under 35 U.S.C. § 103(a) as being unpatentable over Arnon and Nakano, and further in view of Traa, U.S. Patent No. 6,222,660 (hereinafter "Traa"); (6) rejected claims 24, 26-29, and 31 under 35 U.S.C. § 103(a) as being unpatentable over Arnon in view of Hall et al., U.S. Patent No. 6,577,419 (hereinafter "Hall"), Harres and Saunders and Nakano; and (7) rejected claims 17, 25, and 34 under 35 U.S.C. § 103(a) as being unpatentable over Arnon and Hall and Harres and Saunders and Nakano, and in further view of Tomooka et al, U.S. Patent No. 6,266,169 (hereinafter "Tomooka"). Applicant respectfully traverses and further requests reconsideration and withdrawal of the rejections in view of the foregoing amendments and the following remarks.

Summary Of Art Relied Upon By The Office Relevant To The Following Remarks

Arnon generally pertains to a cellular communications network transmitting an optical carrier and detecting the modulated optical carrier in an avalanche photo-diode (APD). (Abstract). Arnon includes altering a gain of the APD responsive to a level of the optical carrier as to prevent saturation of the APD. (*Id.*)

Nakano generally pertains to an alarm circuit. (Figure 2). More specifically, Nakano discloses monitoring an optical signal level provided in an optical receiver. (Abstract). The noise detection circuit multiplies the clock, utilizes the multiplied clock to identify surge noises included in the input signal, and outputs noise pulses. (*Id.*) The alarm circuit counts the noise pulses and outputs an alarm signal when the number of the pulses counted within a certain period reaches a preset value. (*Id.*)

Harres generally pertains to a method and an apparatus that “decodes digital signals by appropriately weighting the respective noise portions of the two phase segments generated by the detector.” (Summary). “The detector detects a digitally encoded communications carrier signal having a waveform defining first and second portions.” (*Id.*)

Rejections Under 35 U.S.C. § 103(a)

Claim 1

The Office rejected claims 1-4, 7, 32-34 and 38 under 35 U.S.C. § 103(a) as being unpatentable over Arnon et al., U.S. Patent Publication No. 2002/0114038 (hereinafter “Arnon”) in view of Nakano, U.S. Patent No. 6,795,675 (hereinafter “Nakano”)

Claim 1, as amended, recites:

An apparatus, comprising:

a receiver configured to receive an optical signal and to convert the optical signal to a corresponding electrical signal; and

a monitoring component configured to calculate a noise level of at least a portion of the electrical signal, and to compare the noise level with a threshold value, and to adjust a gain of the receiver based on the noise level, wherein the monitoring component includes a condition determining component configured to determine at least one of a presence or an absence of light at the receiver.

Claim 1 has been amended by combining the recitations of formerly presented claim 11 to independent claim 1. In the Office Action, claim 11 was rejected as being unpatentable over Arnon in view of Nakano, and further in view of Harres. Applicant respectfully traverses.

In the rejection of the recitation “the monitoring component includes a condition determining component configured to determine at least one of a presence or an absence of light at the receiver,” the Office relies on a combination of three references: Arnon, Nakano, and Harres. Applicant respectfully submits that the combination of these references does not meet the standard set for a 103 rejection, as laid out in the MPEP in view of case law. In particular, though not exclusively, the cited art does not even address the problems addressed by the rejected claims.

As the Office is aware, the MPEP abides to a three part test known at the Graham factual inquiry of A) determining the scope and content of the prior art; and (B) ascertaining the differences between the claimed invention and the prior art; and (C) resolving the level of ordinary skill in the pertinent art. *Graham v. John Deere Co.* (383 U.S. 1, 148 USPQ 459 (1966)) (MPEP §2141). The Supreme Court in *KSR* reaffirmed the familiar framework for determining obviousness as set forth in *Graham v. John Deere Co.* (383 U.S. 1, 148 USPQ 459 (1966)), but stated that the Federal Circuit had erred by applying the teaching-suggestion-motivation (TSM) test in an overly rigid and formalistic way. *KSR*, 550 U.S. at ___, 82 USPQ2d at 1391. (MPEP §2141).

Generally, Applicant’s invention relates to a method and/or apparatus to compare the noise level to a threshold value for a receiver to prevent the receiver from reaching saturation, a condition relevant to aircraft which experience large temperature variations while in operation. The relied upon references cited in the rejection do not teach, suggest, or even address a similar problem. Further, Applicant suggests that, had the relied upon prior art references been aware of the advantages of “comparing the noise level with a threshold value, and to adjust a gain of the receiver based on the noise level,” then these references would have disclosed such a

configuration. However, the Office has found it necessary to combine three references (Arnon, Nakano, and Harres) to teach each limitation of claim 1. Applicant reminds the Office of a longstanding rule: "In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious." (*M.P.E.P. §2141.02 citing Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed Cir. 1983), emphasis original.)

After KSR, the MPEP states: "The mere fact that references can be combined or modified does not render the resultant combination obvious unless . . . the results would have been predictable to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1396 (2007) ("If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.")" (MPEP §2143.01, emphasis added). Applicant highlights the phrase "unless its application is beyond his or her skill." As applied to the instant rejection, Applicant respectfully submits that the application of the apparatus, as recited in claim 1, is beyond the skill of a person of ordinary skill in the art because that person would not consider 1) environments having extreme temperature variations in which the apparatus may be operated, and 2) the advantages of comparing noise level with a threshold to advantageously improve the apparatus's operation in environments subjected to extreme temperature variations.

As noted above in KSR, a motivation requirement still exists in patent law. The Office may not pick and choose minute teachings from various prior art to assemble the invention described by Applicant. As a primary example, the Office states, "But, Arnon does not expressly state to compare the noise level with a threshold value." (Office Action, page 4, lines 3-4). Next, the Office suggests that the "threshold value" can be inferred in Arnon. However, as the

Office stated previously and Applicant agrees, “Arnon does not expressly state . . . a threshold value.” Further, case law supports Applicant’s position: “Inherency. . . may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.” (*In re Oelrich*, 666 F.2d 578,581, 212 USPQ 323, 326 (C.C.P.A. 1981) *citing Hansgird v. Kemmer*, 102 F.2d 212, 214, 40 USPQ 665, 667 (C.C.P.A. 1939), emphasis added.)

Next, the Office relies on Nakano as teaching a threshold value because Nakano discloses a feedback loop, relying on Figures 1 and 2 in Nakano. (Office Action, page 4, lines 7-14). Figure 1 of Nakano and the description do not teach or suggest “compare the noise level.” Even more importantly, in Figure 2 of Nakano, the feedback control circuit (element 4) is completely separated from the noise detection circuit (element 6). Therefore, Applicant is unsure how the noise detection circuit could possibly operate within the feedback control circuit because of the separation between the components in the circuit of Nakano. Therefore, Applicant respectfully submits that the combination of Nakano and Arnon is improper.

Moving to motivation, the Office includes a statement of motivation which states, “Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply a threshold value in the system of Arnon so that the gain of the APD can be better controlled and the signal quality can be improved.” Applicants respectfully suggest that this statement is conclusory and does not pinpoint motivation from either Arnon or Nakano, or one of ordinary skill in the art.

Finally, Applicant request reconsideration of the recitation “wherein the monitoring component includes a condition determining component configured to determine at least one of a presence or an absence of light at the receiver,” as included in amended claim 1. In particular, Applicant requests the Office to provide a pinpoint reference to this disclosure in Harres or another prior art reference. As recited, Applicant submits that the relied upon art fails to teach this limitation.

Claims 2-5, 7-10, and 12-15 are dependent on base claim 1 and are at least allowable for their dependence upon an allowable base Claim 1. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejections to claims 1-5, 7-10, and 12-15.

Claim 16

The Office rejected claims 16, 18-21, and 23 under 35 U.S.C. § 103(a) as being unpatentable over Arnon in view of Harres, U.S. Patent No. 6,128,112 (hereinafter “Harres”) and Saunders, U.S. Patent No. 6,259,542 (hereinafter “Saunders”) and Nakano;

Claim 16 recites:

An optical system, comprising:

- a transmitter configured to transmit an optical signal;
- a receiver configured to receive the optical signal and to output an electrical signal; and
- a monitoring component configured to monitor a noise level of at least a portion of the electrical signal and to reduce at least one of an amplification of the transmitter and a gain of the receiver *when a ratio of an average energy of a high-state A of the electrical signal and an average energy of a low-state A of the electrical signal is greater than a predetermined threshold.*

(Emphasis added.)

Applicant submits that the remarks provided above with reference to claim 1 also apply to claim 16. In fact, claim 16 provides additional distinguishing recitations as it further recites a “ratio of an average energy of a high-state A of the electrical signal and an average energy of a low-state A of the electrical signal.” Nakano clearly does not contemplate such a detailed comparison to any possible threshold using the feedback loop presented in Figures 1 and 2 in Nakano.

The Office provides a motivational statement for claim 16 as follows:

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the ratio of the energy states and a comparator and a predetermined threshold as taught by Harres and Saunders and

Nakano to the system of Arnon so that the gain is adjusted when a ratio of an average energy of a high-state of the electrical signal and an average energy of a low-state of the electrical signal is greater than a predetermined threshold, and then the gain of the APD can be better controlled and the signal quality can be improved.

(Office Action, page 9, lines 5-11). Again, Applicant submits that this motivation statement is conclusory and requests the Office to either provide a pinpoint citation to a motivational statement from each reference, or other sources, so to prove that one of ordinary skill in the art would have the requisite motivation to create this combination of these four references: Harres, Saunder, Nakano, and Arnon.

Finally, Applicant respectfully submits that none of the relied upon prior art references specifically states forming the “ration” by averages of the “high-state” and “low-state,” as recited in claim 16.

Claims 17-21 and 23 are dependent on base claim 16 and are at least allowable for their dependence upon an allowable base Claim 16. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejections to claims 16-21 and 23.

Claim 24

The Office rejected claims 24, 26-29, and 31 under 35 U.S.C. § 103(a) as being unpatentable over Arnon in view of Hall et al., U.S. Patent No. 6,577,419 (hereinafter “Hall”), Harres and Saunders and Nakano.

Applicant respectfully submits that claim 24 is allowable at least for similar reasoning presented for claim 16. More specifically, claim 24 includes the recitation “a ratio of an average energy of a high-state A of the electrical signal and an average energy of a low-state A of the electrical signal is greater than a predetermined threshold.” Claim 24 is rejected using a combination of six prior art references (Arnon, Hall, Harres, Saunders, Nakano, and Tomooka). In the motivation statement included by the Office on page 24 of the present Office Action, the

Office fails to assert a motivation for combining Hall. Applicant requests that the Office point to motivation in Hall or the other reference, or another known source which provides motivation for this combination of the apparatus in a vehicle, as recited in claim 24.

Claims 25-29 and 31 are dependent on base claim 24 and are at least allowable for their dependence upon an allowable base Claim 24. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejections to claims 24-29 and 31.

Claim 32

Claim 32, as amended, recites:

A method of controlling an output of an optical system, comprising:
receiving an optical signal with a receiver;
converting the optical signal to a corresponding electrical signal;
calculating a noise level of at least a portion of the electrical signal, and
comparing the noise level with a threshold value,
wherein calculating a noise level of at least a portion of the electrical signal includes:
computing an average energy for a high-state A of the electrical signal;
computing an average energy for the low-state -A of the electrical signal; and
comparing a ratio of the average energies for the high- and low-states A, -A with the threshold value; and
adjusting at least one of an amplification of the optical signal and a gain of the receiver based on the noise level.

Applicant submits that the remarks provided above with reference to claim 1 also apply to claim 32. In fact, claim 32 provides additional distinguishing recitations as it further recites a “comparing a ratio of the average energies for the high- and low-states A, -A with the threshold value.” Nakano clearly does not contemplate such a detailed comparison to any possible threshold using the feedback loop presented in Figures 1 and 2 in Nakano.

Claims 33-35, 37-40, and 42-43 are dependent on base claim 32 and are at least allowable for their dependence upon an allowable base Claim 32. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejections to claims 32-35, 37-40, and 42-43.

CONCLUSION

Accordingly, Applicants respectfully submit that pending claims 1-5, 7-10, 12-21, 23-29, 31-35, 37-40, and 42-43 are now in condition for allowance. If there are any remaining matters that may be handled by telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

Respectfully Submitted,

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